



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

RF

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,953	02/14/2001	Atsushi Murakami	P 277864	9766
23117	7590	11/18/2003		
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			EXAMINER MILLER, PATRICK L	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/781,953

Applicant(s)

MURAKAMI ET AL.

Examiner

Patrick Miller

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,7,11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,7,11 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Response to Amendment***

1. On the previous office action the Examiner erroneously calculated the coefficient of water absorption using the Osanai et al (6,237,717) reference. Based on the Applicant's description of how to calculate the coefficient of water absorption filed on 11/05/02, the Examiner now believes he has calculated the coefficient of water absorption correctly.

- 1) Starting with Table 1, example 3. I took the  $.18\text{g/cm}^3$  (foam density) and multiplied by the volume  $100\text{mm} \times 100\text{mm} \times 50\text{mm} = 500\text{ cm}^3$  (dimensions found on col. 10, line 65).

- Weight/Mass (dry) = 90g

- 2) Using the formula for coefficient of water absorption I calculated the "wet" mass.

$$M\% = ((W_{\text{wet}} - W_{\text{dry}}) / W_{\text{dry}}) * 100$$

$$M\% = 6.8\% \text{ (coefficient of water absorption from Table 3, example)}$$

- 3)  $W_{\text{dry}} = 90\text{g}$  (from above)

- Calculated  $W_{\text{wet}} = 96.16\text{ g}$

- 4) The definition of coefficient of water absorption is the mass of the water absorbed divided by the volume.

- Here the mass of water absorbed is  $96.16\text{g} - 90\text{g} = 6.16\text{g}$ .
- mass of water absorbed divided by volume  $6.16\text{g} / 500\text{cm}^3 = .0123\text{ g/cm}^3$ .

- 5)  $.0123\text{ g/cm}^3$  is within the Applicant's claimed range.

Art Unit: 2837

2. Should the Applicant determine that this method of calculation is correct, the

Examiner suggests amending the range to start at  $.013 \text{ g/cm}^3$  or similar.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 7, 11, and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrington et al (5,032,622) in view of Osanai et al (6,237,717).
- Herrington et al disclose a shape foam memory foam member made of polyurethane foam and method (Title and Abstract) with the following characteristics: a bulk density that is not more than  $400 \text{ kg/m}^3$  (Col. 1, lines 36-39); said member has an original shape and is compressed with heating, cooled while in the compressed state, released from the compressed state after cooling, and the original shape is recovered by heating (Abstract).
  - Herrington et al do not disclose said member having a coefficient of water absorption between  $.01 \text{ g/cm}^3$  and  $.2 \text{ g/cm}^3$ , said member is provided on a surfaced of an engine soundproof cover (claims 3 and 7), and the shape of said member is recovered by engine heat (claims 17 and 18).
  - Osanai et al disclose a noise-insulating member made of polyurethane foam that covers an engine, where said insulating member has a  $.0123 \text{ g/cm}^3$  coefficient of water absorption (see calculation above). The motivation for providing a foam member with a  $.0123 \text{ g/cm}^3$  coefficient of water absorption is to prevent the foam

from significantly retaining water, which provides the advantage of increasing the foam shape's density a smaller percentage than that of comparative examples (Comparing Tables 3 and 4).

- With respect to claims 17 and 18, Herrington et al disclose the transition temperature,  $T_g$  being  $35^{\circ}\text{C}$  ( $95^{\circ}\text{F}$ ). A person of ordinary skill in the art would know that the operating temperature of an engine is above  $35^{\circ}\text{C}$  and would provide sufficient heat to make the foam member substantially recover.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the shape memory foam of Herrington et al so that it exhibits characteristics of water repellency, wherein the coefficient of water absorption is  $.0123\text{ g/cm}^3$ , which falls into the range of  $.01\text{ g/cm}^3$  to  $.2\text{ g/cm}^3$ , thereby providing the advantage of increasing the foam shape's density by a smaller percentage, as taught by Osanai et al. Additionally, it would have been obvious to one having ordinary skill in the art at the time of the invention that the shape memory foam of Herrington et al can be fitted to a soundproof cover that fits over an engine, and the engine provides the heat to recover the original shape of the foam member, thereby providing the advantage of preventing undesirable noise from entering the passenger compartment, as taught by Osanai et al.
- With respect to claims 13-16, Herrington et al disclose the member having a bulk density that is not more than  $150\text{ kg/m}^3$  (Col. 1, lines 36-39).

Art Unit: 2837

*Allowable Subject Matter*

4. Claims 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
  - The Prior Art does not disclose a shape memory foam member as disclosed with a coefficient of water absorption between  $.04 \text{ g/cm}^3$  and  $.1 \text{ g/cm}^3$  in a non-compressed state.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 703-308-4931. The examiner can normally be reached on M-F, 8:30-5:30.

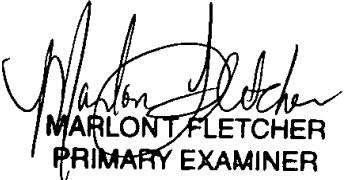
Art Unit: 2837

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on 703-308-3370. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Patrick Miller  
Examiner  
Art Unit 2837

pm  
November 12, 2003

  
MARLON FLETCHER  
PRIMARY EXAMINER